

CLAIMS

I 264/308 1-11  
II 428/67 12-15  
III 425/375 16-21  
IV 384/28 22-25

At least the following is claimed:

1 A method of producing a three-dimensional object, comprising the step  
2 of:

3 forming an identifiable structure within the three-dimensional  
4 object, wherein the identifiable structure within the three-dimensional  
5 object can be detected using a non-invasive dimensional imaging device.

1 2. The method of claim 1, further comprising:

2 providing a build material and a contrast enhancing material,  
3 wherein the three-dimensional object is constructed of the build material,  
4 and wherein the identifiable structure is fabricated from the contrast  
5 enhancing material.

1 3. The method of claim 2, wherein forming includes:

2 disposing at least one layer of the build material onto a first area  
3 in an iterative manner;

4 disposing at least one layer of the contrast enhancing material  
5 and the build material onto the first area, wherein the contrast enhancing  
6 material being disposed onto a designated area, wherein the build  
7 material being disposed onto a second area, wherein the second area  
8 and the designated area are different areas of the first area;

9 forming the identifiable structure from at least one layer of the  
10 contrast enhancing material;

11 disposing at least one layer of the build material onto the second  
12 area and the designated area; and

13 forming the three-dimensional object.

- 1    4.    The method of claim 3, further comprising:  
2                forming a plurality of identifiable structures within the three-  
3                dimensional object.
- 1    5.    The method of claim 1, further comprising:  
2                providing a build material and a contrast enhancing material,  
3                wherein the three-dimensional object is constructed of the contrast  
4                enhancing material, and wherein the identifiable structure is fabricated  
5                from the build material.
- 1    6.    The method of claim 1, wherein the identifiable structure is fabricated  
2                from a contrast enhancing material.
- 1    7.    The method of claim 1, further comprising:  
2                wherein the identifiable structure is fabricated from a contrast  
3                enhancing material and includes at least one air-gap within the  
4                identifiable structure, wherein the combination of the contrast enhancing  
5                material and the air-gap define structure selected from a letter, a  
6                number, a symbol, an icon, an emblem, a logo, a sign, a bar code, a  
7                reference mark, a unique shape, a pattern and combinations thereof.
- 1    8.    The method of claim 1, wherein the non-invasive dimensional imaging  
2                device includes devices selected from X-ray devices, magnetic imaging  
3                devices, computerized axial tomography (CAT) scan devices, ultrasound  
4                devices, and computerized topography devices.
- 1    9.    The method of claim 1, wherein the contrast enhancing material is  
2                selected from nano-particles, micro-particles, colorants, and  
3                combinations thereof.

- 1 10. The method of claim 1, wherein the identifiable structure is selected from  
2 a letter, a number, a symbol, an icon, an emblem, a logo, a sign, a bar  
3 code, a reference mark, a unique shape, a pattern and combinations  
4 thereof.
- 1 11. The method of claim 1, further comprising:  
2 wherein the identifiable structure is a void, wherein the void  
3 defines the identifiable structure selected from a letter, a number, a  
4 symbol, an icon, an emblem, a logo, a sign, a bar code, a reference  
5 mark, a unique shape, a pattern and combinations thereof.
- 1 12. A three-dimensional object produced by the method of claim 1.
- 1 13. The three-dimensional object of claim 12, wherein the three-dimensional  
2 object being a bone replacement
- 1 14. The three-dimensional object of claim 13, wherein the three-dimensional  
2 object being a security device.
- 1 15. A three-dimensional object produced by the method of claim 11.
- 1 16. A system for producing a three-dimensional object, comprising:  
2 a dispensing system including a build material and a contrast  
3 enhancing material;  
4 a layer forming system operative to:  
5 form an identifiable structure, wherein the identifiable  
6 structure can be detected using a non-invasive dimensional  
7 imaging device, and  
8 form the three-dimensional object, wherein the identifiable  
9 structure is disposed within the three-dimensional structure.

- 1 17. The system of claim 16, wherein the identifiable structure is fabricated  
2 from the contrast enhancing material.
- 1 18. The system of claim 16, wherein the identifiable structure is a void.  
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- 1 19. The system of claim 16, wherein the identifiable structure is selected  
2 from a letter, a number, a symbol, an icon, an emblem, a logo, a sign, a  
3 bar code, a reference mark, a unique shape, a pattern and combinations  
4 thereof.
- 1 20. The system of claim 16, wherein the three-dimensional object being a  
2 bone replacement.
- 1 21. The system of claim 16, wherein the three-dimensional object being a  
2 security device.
- 1 22. A method of identifying a three-dimensional object, comprising:  
1 providing the three-dimensional object having an identifiable  
2 structure disposed within the three-dimensional object;  
3 viewing the identifiable structure within the three-dimensional  
4 object using a non-invasive dimensional imaging device.
- 1 23. The method of claim 22, wherein the three-dimensional object is  
2 disposed within a human subject.
- 1 24. The method of claim 23, wherein the three-dimensional object is selected  
2 from a bone replacement and a joint replacement.
- 1 25. The method of claim 22, wherein the identifiable structure is selected  
2 from a letter, a number, a symbol, an icon, an emblem, a logo, a sign, a  
3 bar code, a reference mark, a unique shape, a pattern and combinations  
4 thereof.